INTEGRATING

LOW IMPACT DEVELOPMENT

INTO KENMORE'S CODES & ENFORCEABLE STANDARDS

CITY COUNCIL MEETING

SEPTEMBER 19, 2016

Presentation Overview

City of Kenmore Project Team:

- Richard Sawyer, Surface Water Manager & Project Manager
- Andrew Bauer, Associate Planner
- Lauri Anderson, Senior Planner
- Zack Richardson, Civil Engineer

AHBL Project Team:

- Wayne Carlson, Principal & Project Manager
- Lisa Klein, Associate Principal
- Alex Campbell, Project Planner

Presentation Overview

I. Why are we here?
II. What is LID?
III. Integrating LID Principles & BMPs
IV. Project Schedule
V. Amendment Proposals
VI. Resources

Presentation Overview

We are here to discuss the integration of LID principles and LID Best Management Practices (BMPs) into the City of Kenmore's codes and standards as is required under the NPDES Municipal Stormwater Permit. This will include a short introduction to LID, the steps needed to accomplish LID code integration, and an overview of the project schedule and status.

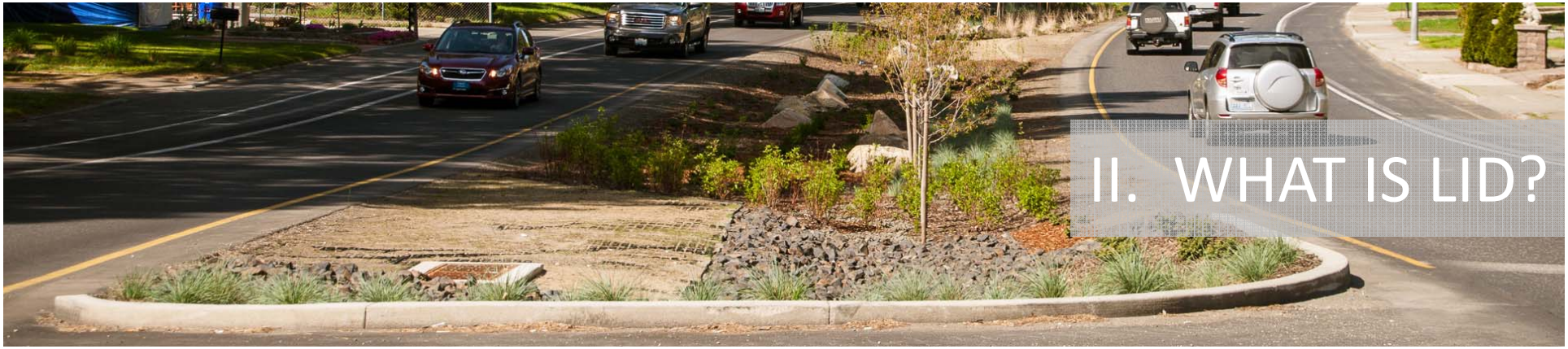
I. WHY ARE WE HERE?

Why are we here?

2013-2018 Western Washington
Phase II Municipal Stormwater Permit (NPDES)

No later than December 31, 2016, permittees shall review, revise and make effective their local development-related codes, rules, standards, or other enforceable documents to incorporate and require LID principles and LID BMPs.

The intent of the revisions shall be to make LID the preferred and commonly-used approach to site development. **The revisions shall be designed to minimize impervious surfaces, native vegetation loss, and stormwater runoff in <u>all types of development situations</u>**.



II. WHAT IS LID?

What is LID?

"Low-impact development (LID) is a stormwater and land use management strategy that strives to mimic pre-disturbance hydrologic processes of infiltration, filtration, storage, evaporation, and transpiration by emphasizing conservation, use of on-site natural features, site planning, and distributed stormwater management practices that are integrated into a project design."

Source: Department of Ecology's Phase II NPDES Municipal Stormwater Permit

What is LID?

The Permit characterizes LID as "principles" & "BMPs":

Key LID principles:

- Reduce impervious surface coverage.
- Reduce native (or adapted) vegetation loss
- Reduce stormwater runoff

Key LID BMP examples required where feasible:

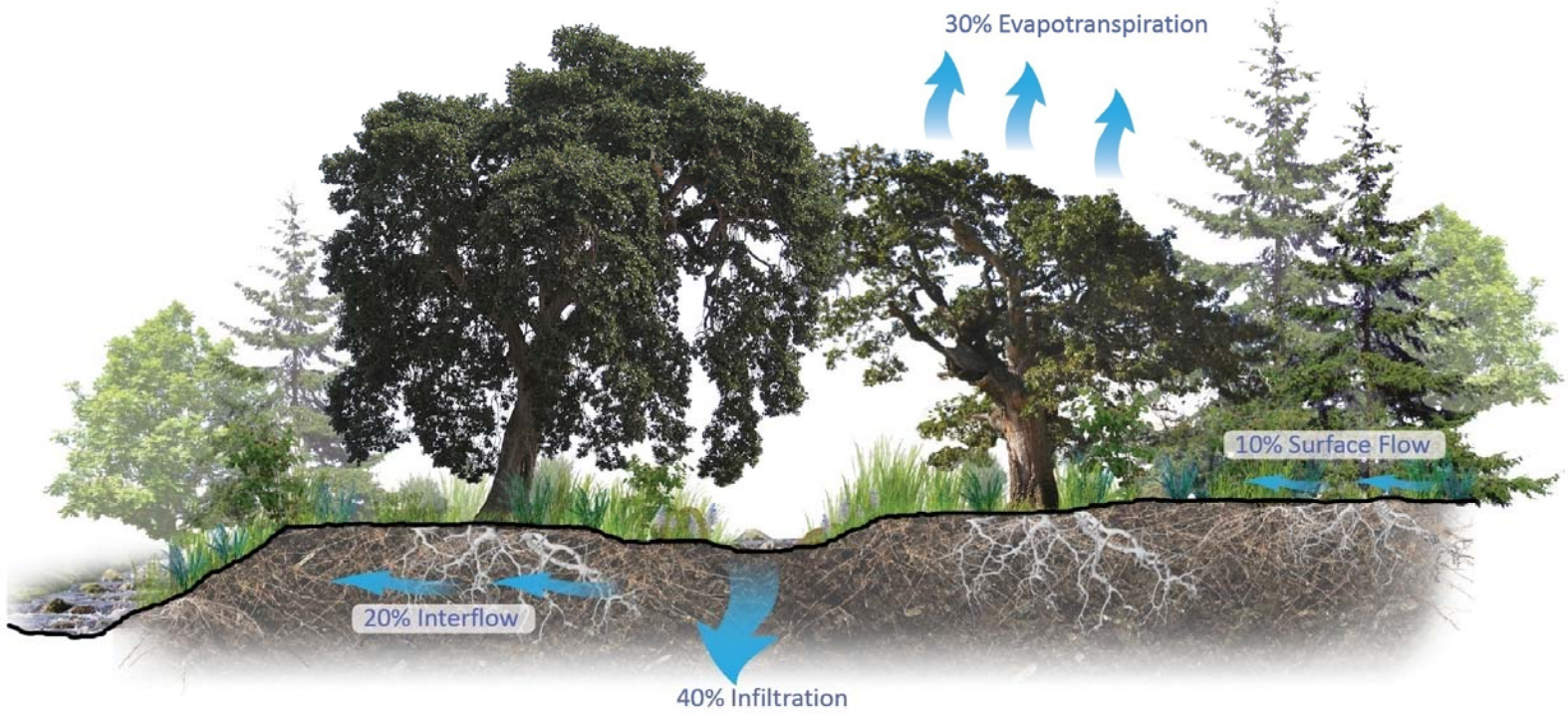
- Dispersion or infiltration of stormwater
- Bioretention
- Permeable pavements

Optional LID BMP examples:

- *Rain gardens*
- *Rainwater harvesting*

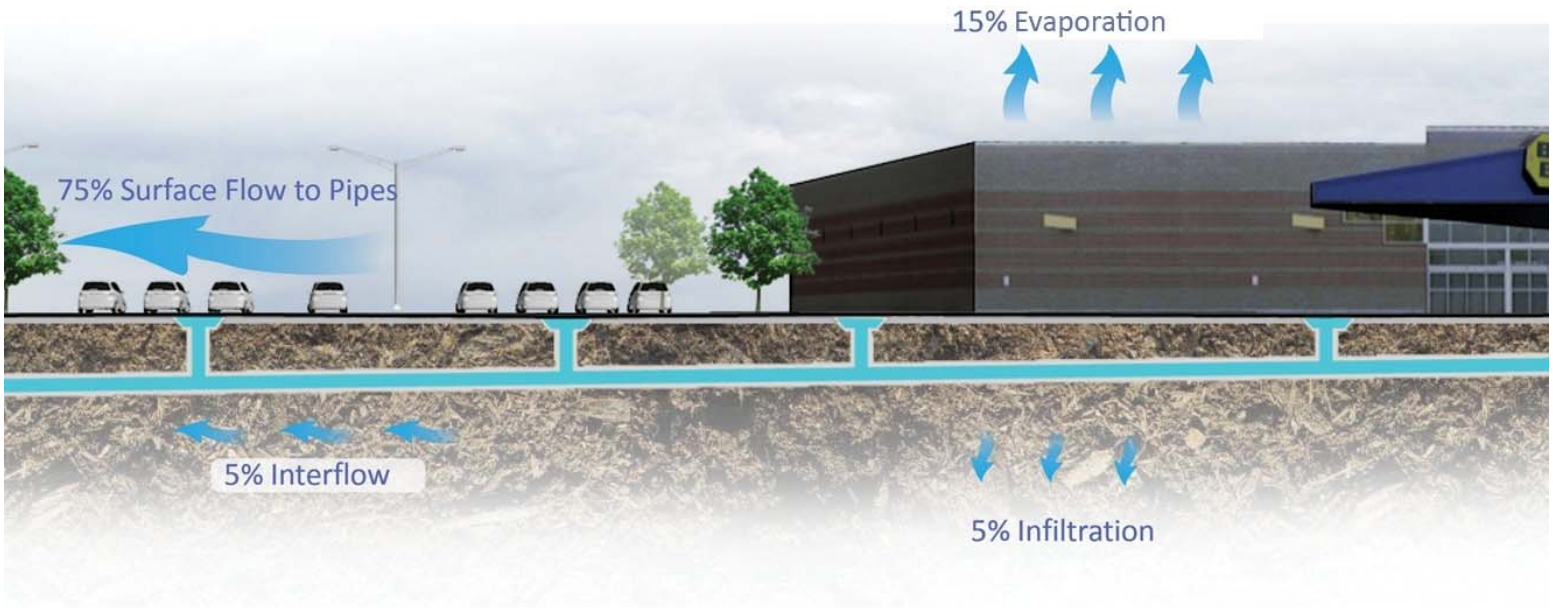
What is LID?

Pre-Development Hydrologic Conditions



What is LID?

Post-Development Hydrologic Conditions



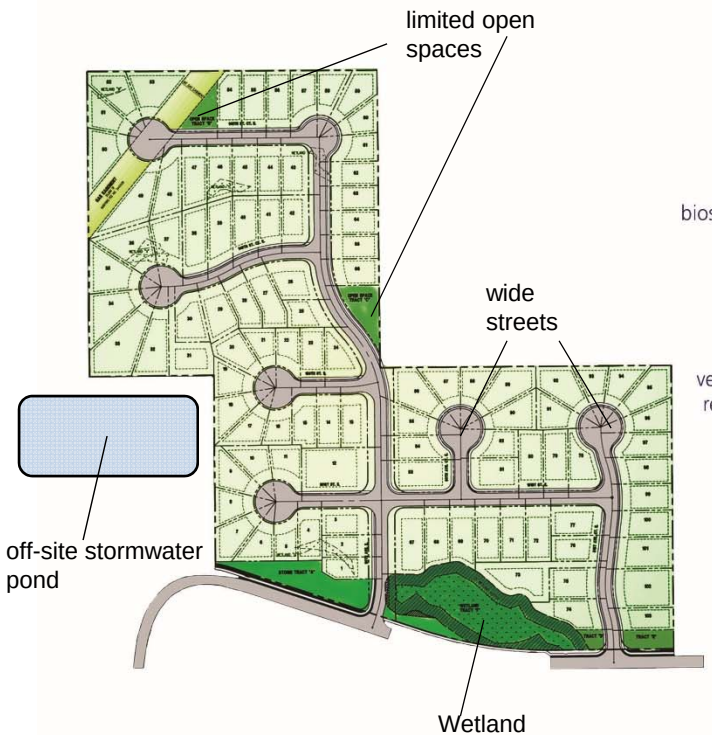
What is LID?

Intended Results of Low Impact Development:

- Reduces volume thereby minimizing high flows
- Removes pollutants from stormwater
- Replenishes streams and wetlands
- Reduces size of conventional stormwater facilities
- Increases open space
- Visually attractive
- Can result in construction and maintenance cost savings
- Can increase densities

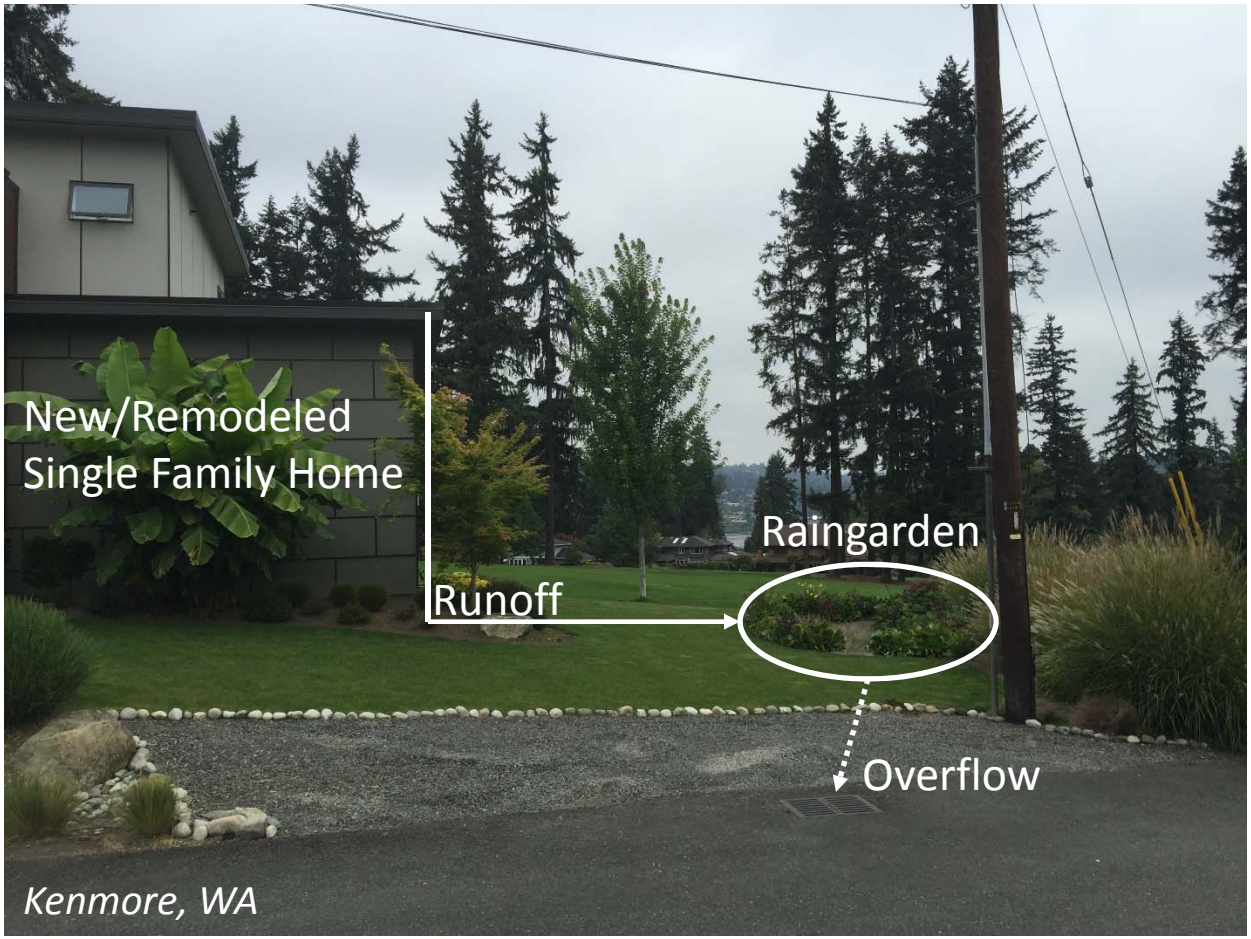
What is LID?

LID Principles and BMPs: Multiple functions



What is LID?

Single Family Homes



What is LID?

Commercial/Professional Office Development

Center for Urban Waters, Tacoma, WA

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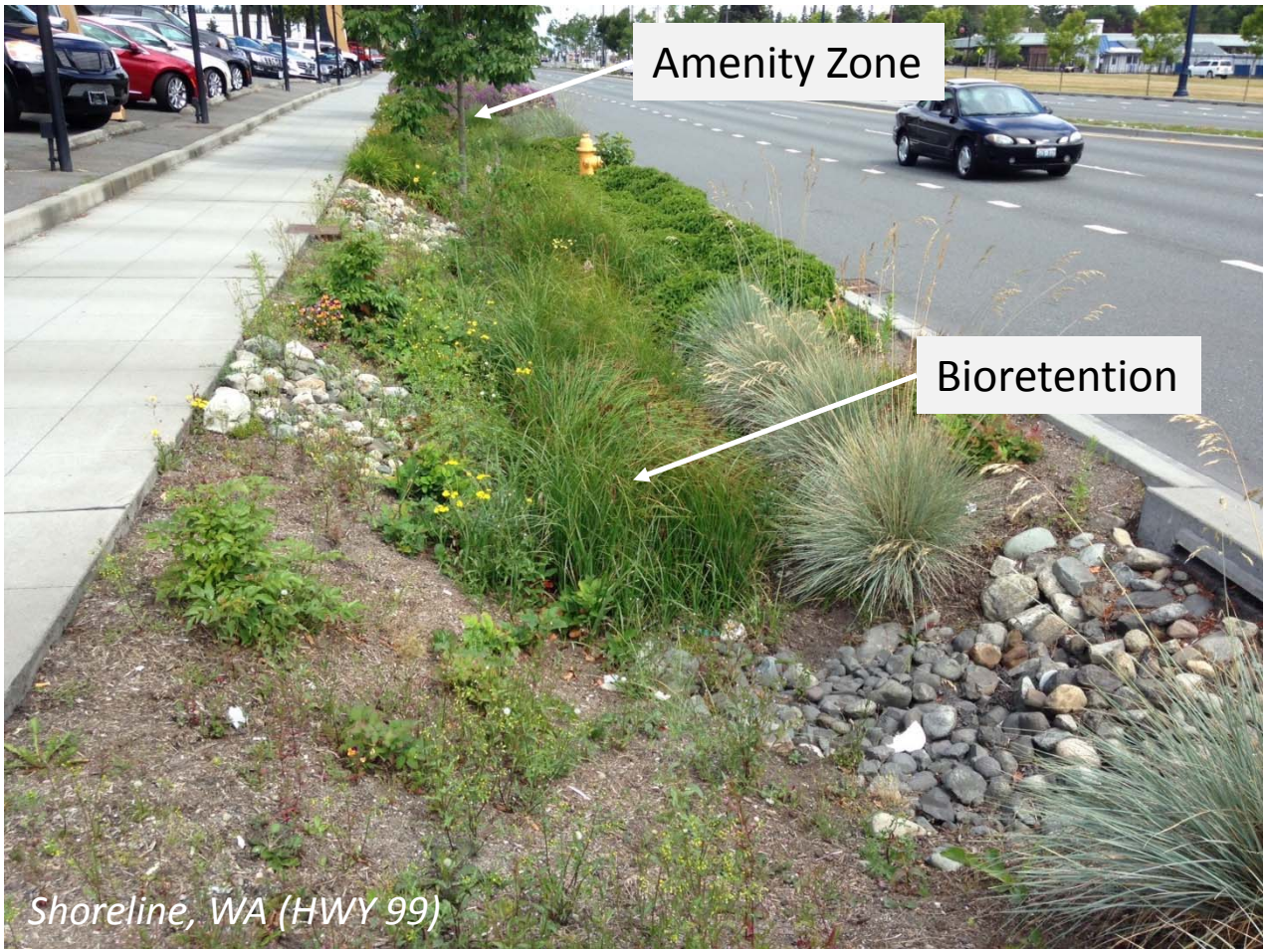
What is LID?

Street Project



What is LID?

Who Maintains LID

Private/Public Maintenance Policies:

- Facilities, traditional or LID, that serve non-residential properties or that serve single residential properties are required to maintain those facilities and provide the City access for inspection.

- Facilities, traditional or LID, that are located in public rights-of-way, tracts or in easements dedicated to the City for the purpose of maintenance are maintained by the City.

III. INTEGRATING LID PRINCIPLES & GSI BMPS

Integrating LID Principles and LID BMPs

Western WA Phase II NPDES Municipal Stormwater Permit Requirements Summary:

- LID is required, where feasible, for all sized projects, residential, non-residential and public
- The City must review & amend local codes & standards to
  - Integrate LID principles
  - Incorporate required LID BMPs
  - Consider optional BMPs that permittees may opt to allow or require

Integrating LID Principles and LID BMPs

Integration is accomplished by starting with a **gap analysis** to identify where existing codes already meet the intent of the Permit or where they need updates to meet the intent. The Permit's intent is to:

- Require non-structural practices (principles) to be integrated into early stages of project design
- Achieve LID principles though methods, such as:
  - Conserve Vegetation
  - Reduce & Disconnect Impervious Surfaces
  - Distribute small-scale techniques across the development site
  - Infiltrate on site
- Incorporate LID BMPs through adoption of a manual equivalent to Ecology's. The King County 2016 Surface Water Design Manual has been granted this equivalency.

Integrating LID Principles and LID BMPs

Code sections that dealt with the following topics were examined for implementing LID principles, including:

- Site analysis
- Vegetation/canopy conservation
- Reduce impervious surface coverage
- Clustering
- Reduced road width
- Higher buildings & smaller footprints
- Parking design
- Incorporate bioretention in required landscaping

Integrating LID Principles and BMPs

Required BMPs (unless infeasible)
Rain Gardens, Bioretention and Permeable Pavement

Integrating LID Principles and GSI BMPs

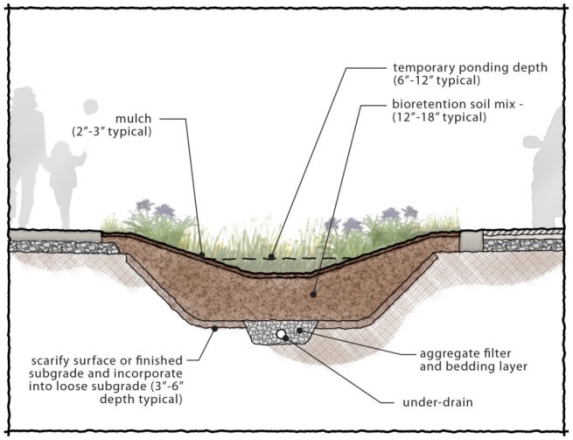
Required BMPs (unless infeasible) Dispersion, Downspout Dispersion Sheet Flow, and Perforated Stub Connections

Sheet Flow

Dispersion

Downspout Dispersion

Perforated Stub Connection



Integrating LID Principles and GSI BMPs

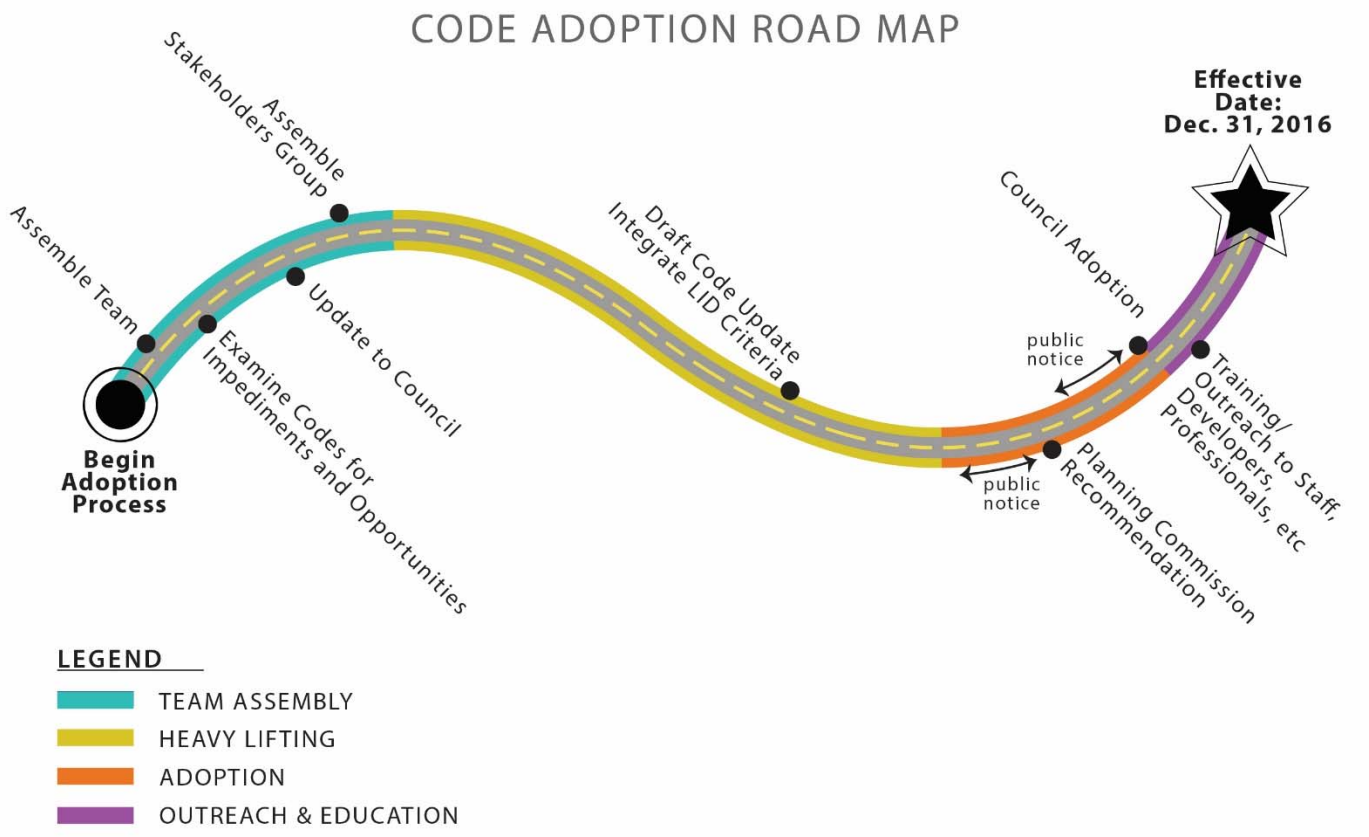
Optional BMPs – permittees may opt to allow or require

Vegetated roofs

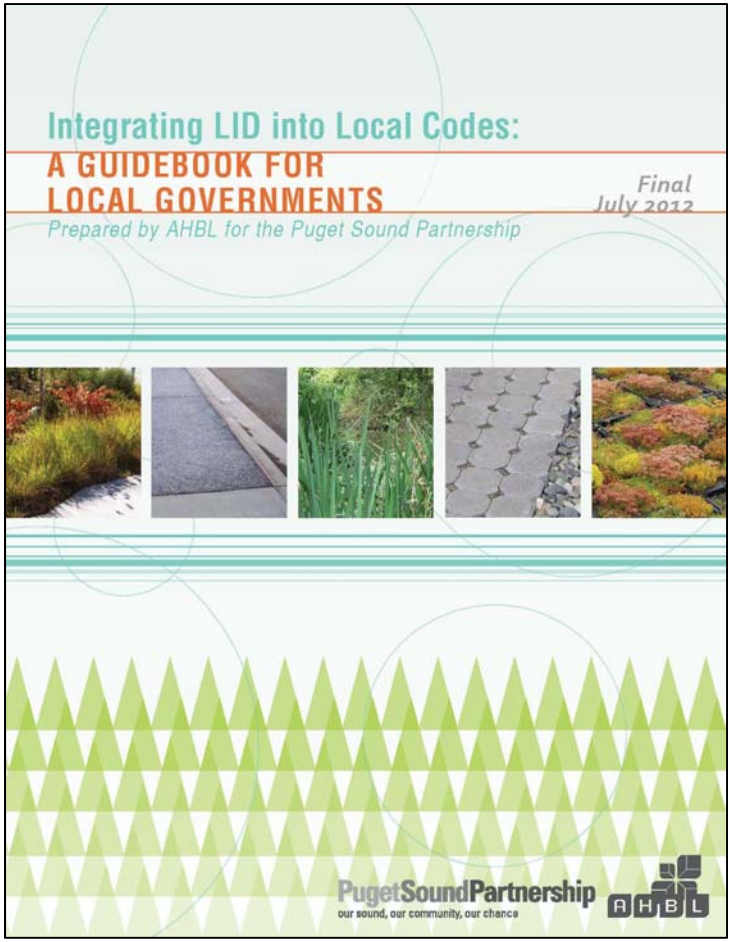
Rainwater Harvesting

Pin Foundations

IV. PROJECT SCHEDULE & APPROACH



Project Schedule & Approach



Next Steps:

Done Assemble Team
Done Understand LID topics to Address
Done Review Existing Codes & Standards
Done Fill in the Gaps

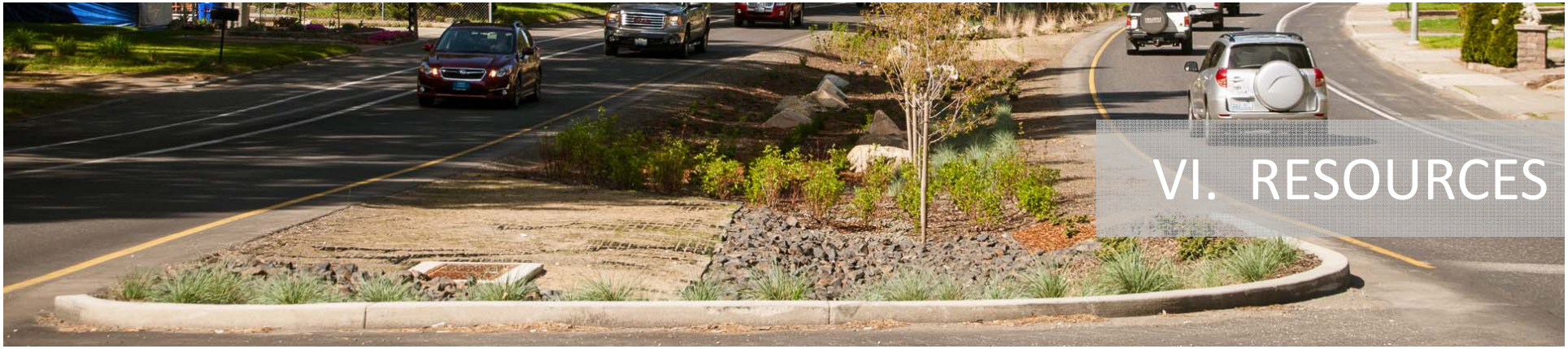
Next Review & Adopt
Next Implementation

V. AMENDMENT PROPOSALS

CODE CITATION	AMENDMENT SUMMARY
Title 12 - Streets and Bridges	
Chapter 12.50 – Adoption	Include reference to staying current with changing environmental technologies and methods.
Chapter 12.70 – Sidewalks, Planting Strips and Street Trees	Amend definitions for consistency with the Phase II NPDES Permit. Amend planting strip maintenance requirements for abutting property owners to include landscape-based stormwater management facilities.
TITLE 13 – Utilities and Public Works	
Chapter 13.20 – Technical Terms and Definitions	Proposed new code section to consolidate the definitions present throughout Title 13 into one chapter. Amend definitions for consistency with the Phase II NPDES Permit.
Chapter 13.35 – Surface Water Runoff Policy	Amend code language to reference the adoption of the 2016 King County Surface Water Design Manual. Move definitions to proposed Chapter 13.20.
Chapter 13.40 – Surface Water Management Program	Move definitions to proposed Chapter 13.20. Amend references of “director” to “City Manager.” Amend outdated references to annexations debts and rural areas. Amend rate adjustment program for consistency with Surface Water Master Plan.
Chapter 13.45 – Water Quality	Move definitions to proposed Chapter 13.20.

CODE CITATION	AMENDMENT SUMMARY
Title 15 – Buildings and Construction	
Chapter 15.25 – Land Alteration	Amend definitions for consistency with the Phase II NPDES Permit. Remove cumulative impervious surface exemption from grading permits. Propose compaction of permeable surface provision.
TITLE 17 – Land Division	
Chapter 17.20 – Subdivisions and Short Subdivision	Propose language encourage the retention of native vegetation within open spaces and allow landscape based stormwater facilities within open spaces.
TITLE 18 – Zoning	
Chapter 18.20 – Technical Terms and Land Use Definitions	Amend definitions for consistency with the Phase II NPDES Permit.
Chapter 18.21 – Residential Zones	Propose the implementation of Base Impervious Surface coverage.
Chapter 18.23 – Community Business Zone	Encourage the retention of native vegetation within interior setbacks.
Chapter 18.25A – Urban Corridor Zone	Remove the provision to exceed the maximum impervious surface area under a CUP. Encourage the retention of native vegetation.
Chapter 18.25B – Waterfront Commercial Zone	Remove the provision to exceed the maximum impervious surface area under a CUP. Encourage the retention of native vegetation.
Chapter 18.26 – Regional Business Zone	Remove the provision to exceed the maximum impervious surface area under a CUP.

CODE CITATION	AMENDMENT SUMMARY
TITLE 18 – Zoning	
Chapter 18.27 – Public and Semi-Public Zone	Propose that LID shall be employed unless infeasible. Encourage the retention of native vegetation for screening treatments.
Chapter 18.28 – Parks Zone	Propose that LID shall be employed unless infeasible. Encourage the retention of native vegetation for screening treatments.
Chapter 18.25A – Golf Course Zone	Remove provision that paved trails are not considered impervious surfaces. Propose that LID shall be employed unless infeasible. Encourage the retention of native vegetation for screening treatments.
Chapter 18.29 – TOD District Overlay	Clarify code language to clarify the maximum parking allowance.
Chapter 18.30 – Development Standards – General	Amend the location of stormwater and control facilities near rear/interior property lines.
Chapter 18.35 – Development Standards – Landscaping	Propose the allowance of landscape-based stormwater management facilities within Type I,II, and III screening areas and parking lot landscaping.
Chapter 18.40 – Development Standards – Parking and Circulation	Propose the implementation of permeable surfacing unless infeasible. Establish exceedance of minimum parking thresholds in zones outside of Downtown.
Chapter 18.52 – Downtown Design Standards	Encourage the implementation of green infrastructure.



VI. RESOURCES

Resources

Ecology's stormwater website:

http://www.ecy.wa.gov/programs/wq/stormwater/index.html

Washington Stormwater Center LID portal:

http://www.wastormwatercenter.org/low-impact/

EPA's Green Infrastructure website:

http://water.epa.gov/infrastructure/greeninfrastructure/index.cfm

Puget Sound Partnership's stormwater and LID website:

http://www.psp.wa.gov/stormwater.php

Association of Washington Cities LID website:

http://www.awcnet.org/TrainingEducation/LowImpactDevelopment.aspx